

WHAT WE CLAIM IS:

1. A simultaneous block melting method using a laser comprising processing a laser beam into a predetermined shape of a beam by diffraction and transmission in a diffraction type optical element, then focusing it on a target area of a worked material so as to heat and substantially simultaneously melt all of the portion of said material irradiated by the laser beam.
2. A simultaneous block melting method using a laser as set forth in claim 1, comprising splitting the laser beam into a plurality of beams by diffraction and transmission in said diffraction type optical element, then focusing the beams on target areas of said material so as to form a plurality of focused points on the surface of the material and generate heat and thereby substantially simultaneously melt the material at said plurality of focused points.
3. A simultaneous block melting method using a laser as set forth in claim 1, further comprising using the melted portion of the material to weld said material and another material in contact with the same.
4. A simultaneous block melting method using a laser as set forth in claim 3, further comprising using a material absorbing a laser beam as the material to be heated and using a material passing a laser beam as the other material to be bonded with the same.
5. A simultaneous block melting method using a laser as set forth in claim 1, further comprising removing the melted portion of said material to remove a specific portion of said material.
6. A simultaneous block melting method using a laser as set forth in claim 1, further comprising splitting off part of the laser beam by said diffraction type optical element and measuring the energy level of the split off laser light so as to estimate the amount of energy of the laser beam focused on the material.
7. A simultaneous block melting method using a

- 15 -

laser as set forth in claim 1, wherein at least one of said materials is comprised of a plastic.

5 8. A simultaneous block melting method using a laser as set forth in claim 1, wherein at least one of said materials is comprised of a metal.

9. A simultaneous block melting apparatus using a laser provided with a mechanism for working the method described in claim 1.

10 10. A simultaneous block melting apparatus using a laser as set forth in claim 9, wherein said diffraction type optical element is a block of zinc selenide formed with relief shapes and step differences by photolithography and etching.